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SOME AMPHIBIANS AND REPTILES  
FROM ARABIA

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INTRODUCTION

Much of Arabia has long been difficult of access to European and American zoological collectors, and the fauna of the vast region between the Red Sea and the Persian Gulf is still quite inadequately known. Explorations for oil have brought American geologists to the oil field regions of Saudi Arabia, and thanks to the avocational interest of some individuals, collections of amphibians and reptiles have come to the United States National Museum and to the California Academy of Sciences.

A considerable collection of reptiles, with a few amphibians, was presented to the California Academy of Sciences by Mr. John Gasperetti in 1947. Through the kindness of the late Mr. Joseph R. Slevin, curator of herpetology at the Academy, this material was sent on loan for study and report to Dr. Karl P. Schmidt at the Chicago Natural History Museum, who has long maintained an interest in the fauna of southwest Asia. I was studying in the laboratory of the Division of Reptiles at the Museum when the Gasperetti collection arrived in Chicago, and Dr. Schmidt and I made a preliminary examination of it. When other duties promised to delay his report on this material, Dr. Schmidt kindly turned the project over to me for a formal report. This was especially gratifying as some collections from southern Arabia had meanwhile been presented to the Hebrew University in Jerusalem by the members of the British Anti-

Locust Expedition of 1944, under the direction of Dr. J. E. Hardy, then head of the Department of Entomology of the British Mandatory Government. This material, together with specimens from the Trucial Coast collected by Mr. Desmond Vesey-Fitzgerald, and specimens from central Saūdi Arabia collected by Mr. A. R. Waterston, has been included in the following report.

I have listed the localities below, and through the courtesy of Dr. Schmidt, a map, prepared by Miss Margaret G. Bradbury, has been provided.

I wish to thank Dr. Schmidt for his aid and advice, and for his revision of this manuscript. I also wish to thank Mr. Hymen Marx, assistant in the Division of Reptiles at the Chicago Natural History Museum, who has aided Dr. Schmidt by checking the revision. I am especially indebted to Mr. J. C. Battersby, in charge of the Division of Reptiles at the British Museum (Natural History), where I have been privileged to study on several occasions. Finally, I wish to thank Mr. Alan E. Leviton of the California Academy of Sciences for carefully going over the whole manuscript, checking the specimen numbers and the literature, and otherwise aiding in the final preparation for publication.

Specimens in the collection of the California Academy of Sciences are designated by the abbreviations CAS; those in the Hebrew University of Jerusalem by HUI. Representative specimens from the Academy's collection have been deposited at the Chicago Natural History Museum; these specimens are designated CNHM.

#### LOCALITIES

(All localities are in Saūdi Arabia. See map, figure 1.)

Abqaiq	Jebel Hajar
Abu Dhabi	Jebel Qara
Abu Shaiba (Oil field region)	Moreiwa Post (northwestern Arabia)
Al Khobar	Mudawara
Buraimi	Qana, north Nejd
Dammam	Qatif
Dhahran	Ras at Tanura
Doha Dhalum	Sakaka
Dhufar	Sharja
El Alat (Oil field region)	Shimal (Oil field region)
Dar-el-Hadj	Shinas
Hail	Tebuk
Bir Hirmas	Tomayiah (not identified)
Jebel Aja	Trucial Coast at 23° 10' N., 53° E.
Jebel Dam	

Among the localities at which specimens were collected, Abu Shaiba, El Alat, and Shimal are not to be found on any map available to me; they appear to be in the vicinity of the Dhahran-Abqaiq oil fields. Dar-el-Hadj and Bir Hirmas (not named on the accompanying map) are located, respectively, two stations south and two stations north of Tebuk, on the Hedjaz Railway. The locality "Tomayiah" is not identifiable; based upon the date of collection of the specimen, CAS 84626, *Scincus philbyi*, collected February 10, 1945, it does not seem to belong to the Gasperetti collection.



Figure 1. Map of Arabia, showing principal localities mentioned in the text.

## Class AMPHIBIA

## Order SALIENTIA

## Family BUFONIDAE

Genus **Bufo** Laurenti**Bufo pentoni** Anderson.

*Bufo pentoni* ANDERSON, 1893, Ann. Mag. Nat. Hist., (6) 12:440 (Suakin).

MATERIAL EXAMINED (2): HUJ 524, from west of Jebel Hajar (alt.: 500 feet), and HUJ 527, from Buraimi, Trucial Oman, collected in 1944, by Vesey-Fitzgerald.

**Bufo dhufarensis** Parker.

*Bufo dhufarensis* PARKER, 1931, Ann. Mag. Nat. Hist., (10) 8:518 (Milwah, Alaud, southern Arabia).

MATERIAL EXAMINED (3): HUJ 523, from central Arabia; HUJ 525, from Dhufar, collected in 1944, by Waterston; HUJ 526, from Buraimi, collected in 1944, by Vesey-Fitzgerald.

## Family RANIDAE

Genus **Rana** Linnaeus**Rana ridibunda ridibunda** Pallas.

*Rana ridibunda* PALLAS, 1771, Reise Rus. Reich., 1:458 (Gurev, north coast of Caspian Sea).

*Rana ridibunda ridibunda* MERTENS, 1925, Abh. Senck. Ges., 39:55.

MATERIAL EXAMINED (9): CAS 84273, 84407, 84409-84413, and CNHM 74012, from Dhahran, collected in 1945, by Gasperetti; CAS 84415, from Qatif, collected in 1945, by Gasperetti.

## Class REPTILIA

## Order CHELONIA

## Family EMYDIDAE

Genus **Clemmys** Ritgen**Clemmys caspica caspica** (Gmelin).

*Testudo caspica* GMELIN, 1774, Reise durch Russland, 3:59: pls. 10-11 (Hircania [northern Persia]).

*Clemmys caspica caspica* SCHMIDT, 1939, Field Mus. Nat. Hist., Zool. Ser., 24:89.

MATERIAL EXAMINED (2): CAS 84420, from Shimal, collected in 1946, by Gasperetti; CNHM 74009, from Qatif, collected in 1945, by Gasperetti.

Order SAURIA

Family GEKKONIDAE

**Trigonodactylus** Haas, new genus

TYPE SPECIES: *Trigonodactylus arabicus* Haas.

DEFINITION: Habitus very slender. Head and body strongly depressed. Digits one to five, strongly dilated and flattened dorso-ventrally at their base by fan-like extensions of their skin, which overlap between the digits, which are, however, free; laterally digits are fringed by a series of marginal, projecting, triangular, flat scales. Claws thin and long, strongly compressed laterally. Fingers one to four gradually increasing in length; fifth finger ends at level of second finger. Minute, imbricate, triangular scales cover undersides of fingers; only a few transversely widened scales at their tips. Upper surface of hands covered with keeled, imbricate, rather elongate scales. Toes more elongate and slender; with strongly compressed, long claws; margins of toes fringed; length of toes increasing from first to fourth; fifth toe shorter than first; scaling as on hand. A prominent plantar fold extends from base of third toe to base of first toe; deep folds run proximally from outer sides of first, second, and third toes to converge to proximal end of fold between hallux and third toe. Dorsal scales flat, juxtaposed, slightly keeled, elliptical. Pupil a vertical slit. No anal or femoral pores. Moderate hemipenial swellings. Tail circular in cross section, tapering uniformly.

**Trigonodactylus arabicus** Haas, new species.

(Figure 2.)

HOLOTYPE: CAS 84321, male, from Abqaiq, Saūdi Arabia, collected September 29, 1945, by John Gasperetti.

PARATYPES (3): CAS 84318, 84323, females, from the type locality, collected in 1945, by Gasperetti; CNHM 73992, male, from Dhahran, collected in 1945, by Gasperetti. (All specimens rather poorly preserved.)

DESCRIPTION: Habitus slender and strongly depressed, especially the head; limbs very slender; head rather elongate; snout obtusely pointed, equaling length of orbit; length of orbit greater than its distance from ear opening, which has the form of an elliptical, slanting slit. Eye very large; pupil vertical. Upper eyelid bent vertically downward anteriorly, forming a fold at anterior margin of orbit; fold widest below. No lower

eyelid. Interorbital constriction, at narrowest spot, as wide as three head tubercles. Nostrils open at summit of a blunt prominence, followed posteriorly by a depression. An internarial depression extends into rostral. Col- lar constriction very distinct. Adpressed forelimb reaches anterior border of eye; bent backward, it reaches two-thirds the distance between fore- and hindlimbs. Adpressed hindlimb extends forward beyond axilla. Ros- tral cleft, as seen from above, undivided at anterior vertical slope; posteri- orly, rostral concave; dorsal portion of shield twice as wide as long; posterior border transversely truncate, with median re-entrant niche for an unpaired granular scale. Rostral enters nostril; its deeply concave ventro-lateral border is in contact with inner nasals, which are separated from each other by 2 flat polygonal scales. Nostril defined by rostral, 3 nasals (4 nasals on left side, but the third is abnormally excluded from nostril), and first supralabial. Supralabials 13/14, gradually diminishing in height. Head covered above by more or less hexagonal, flat, not imbricate scales, which are smallest at rectangular bend of eyelid; scales on upper side of snout are larger than those adjacent to anterior upper labials; all slightly rugose; temporal scales much smaller, almost granular, between eye and ear opening. Infralabials 9/11. Mental with convex posterior border, somewhat wider than deep, with a slight anterior median prominence. No chin shields. Gular scales minute; lateral ones, near infra- labials, elongate, keeled, and subimbricate; more median ones cycloid, imbricate, and keeled, and gradually diminish in size toward neck. Dorsal scales elongate at middle of back, but are more or less cycloid at sides; their diameter equals the long dimension of the mid-dorsals; all are juxtaposed, not imbricate. Limbs covered dorsally by keeled, cycloid, im- bricate scales, which are much larger than the dorsal body scales; the scales on the dorsal surface of the hindlimbs are much enlarged. Ventral scales are bluntly triangular, keeled, and slightly larger than gulars; ventro- medially, scales are imbricate; laterally, they are juxtaposed. On under- side of extremities, the cycloid, imbricate, keeled scales are arranged in oblique, regular series; they diminish in size toward the proximal end of limb. The largest ventrals, in the pelvic area, are much smaller than the ventral tibial scales. At first glance, the fingers seem to be webbed, but closer examination shows that the proximally enlarged skin folds of the fingers overlap (see diagnosis of the genus). The tail is covered dor- sally by elongate, transversely truncate, keeled scales (up to 3 keels on a scale), arranged in more or less transverse, rather irregular whorls. Ventrally, these transverse series are more distinct. A ventro-median raphé is conspicuous. The subcaudals are subimbricate, elongate, keeled, with rounded distal ends. Two distinct hemipenial swellings present; the two obliquely arranged openings for the hemipenes are placed some- what behind the vent. A cluster of enlarged scales is present on both sides

of the root of the tail, the innermost 2 to 3 of these scales are conical and much enlarged.

A crescent-shaped transverse black marking crosses the snout (fig. 2), linking the anterior corners of the eyes; the concavity of the crescent is directed backward. A blackish streak extends from the posterior border of the eyes to a point above the aperture of the eye, curving slightly upward. A faint stripe on each flank follows the direction of the temporal streak. Upper side of tail with about 10 darker transverse bands, bordered in black and narrower than the yellowish intervals. Venter whitish. A few scattered dark markings are present on nape and on upper side of limbs.

There are no color differences between the sexes.

MEASUREMENT OF HOLOTYPE (in mm.): Snout to vent 31.5; tail 34; length of head 9.5; width of head 5.5; height of head 3.0; forelimb 12.5; hindlimb 17.5.

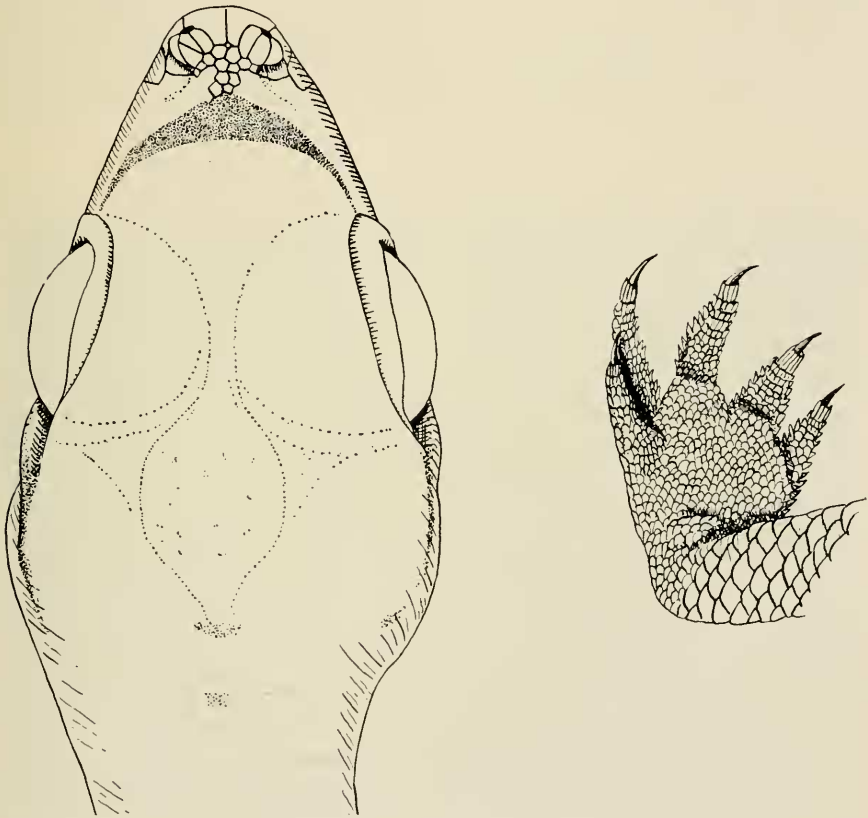


Figure 2. *Trigonodactylus arabicus* Haas, new species. *Left*: Dorsal view of head of CAS 84321, holotype, showing color markings (stippled) and pholidosis of rostral region. *Right*: Plantar surface of right hand of CNHM 73986.

Genus **Stenodactylus** Fitzinger**Stenodactylus slevini** Haas, new species.

(Figure 3.)

HOLOTYPE: CAS 84592, male, from Dhahran, Saūdi Arabia, collected in 1946, by John Gasperetti.

PARATYPES (2): CAS 84540, allotype, from the type locality, collected in 1946, by Gasperetti; CNHM 74026, female, from Al Khobar, collected in 1946, by Gasperetti.

DIAGNOSIS: Habitus rather stout. Arrangement of subdigital scales similar to that in *S. petri*, from which *S. slevini* differs in having the nostril strongly swollen and bordered by 3 nasals and the rostral; the first upper labial reaches the nostril only at a point where the third nasal and the rostral touch each other at the lower periphery of the nostril. The tail does not show the sudden contraction immediately behind the basal swelling, as in *S. petri*, but tapers gradually as in *S. elegans*. Inner nasals separated by one granule, or more or less in contact.

DESCRIPTION: Snout rather short, longer than distance from eye to ear opening. Ear opening small (half the height of the eye), vertically elliptic. Rostral a little broader than high, with a median dorsal cleft in a mid-dorsal depression. Granules on snout polyhedral, closely juxtaposed, very rugose, larger dorsally, especially dorso-laterally, in front of the orbit, and much larger than occipital granules. Inner nasals in contact. Upper labials 14/14; lower labials 13/12. Mental with parallel lateral borders; posterior border convex, somewhat bulging beyond suture with first infra-labials; length to width about 3 to 2. Nostrils swollen; opening directed forward and upward. The nasal swelling is emphasized by a median dorsal depression entering the rostral and a postnarial depression between the third nasal and the labials. Pupil a vertical slit. Upper eyelid bent vertically downward at anterior border of eye; lower lid very narrow, almost invisible. Back covered by rather elongate, juxtaposed granules; similar granules, but broader and slightly larger, on flanks; they form juxtaposed, blunt, triangular tubercles whose apices point backward. All dorsal scales rugose, bluntly keeled on posterior part of back and on upper side of femur. Gular granules slightly smaller than ventrals; latter granules are triangular, subimbricate, and faintly keeled mid-ventrally, rugose and subtubercular in pectoral region. Pelvic ventrals flat and rugose. No preanal or femoral pores. Cycloid, rugose granules present on underside of limbs. A group of much enlarged conical scales occur at each side of swollen base of tail; three of these form a sloping series,



extremely enlarged in male. Ventral side of hemipenial swellings covered with eveloid, imbricate, keeled scales. The adpressed forelimb extends beyond tip of snout; extended backward, forelimb falls short of groin. Adpressed hindlimb reaches axilla. Fingers are covered dorsally by 7 series of pointed, imbricate, keeled scales. The marginal fringes of fingers and toes of moderate size. Enlarged medial series of scales beneath digits twice as wide as the 2 intermediate series. Claws curved, laterally compressed, sharp. Fingers short and stumpy, less flattened dorso-ventrally than in *Ceramodactylus*. First finger shorter than fifth, third and fourth almost equal, second a little shorter. First and fifth toes end at about same level, first to fourth gradually increasing in length. Behind the basal swelling of the tail the scales form obscure rings; these scales are imbricate, keeled, and rugose dorsally and ventrally.

Back, inclusive of head and upper side of limbs, with a black and dark brown reticulation on a pale brown ground color; reticulations denser on body, widely meshed on head. Nine dark brown cross-bars on tail, bordered with black seams, wider than the lighter intervals. Venter pure white. Dark spots on rostral, mental, and upper and lower labials.

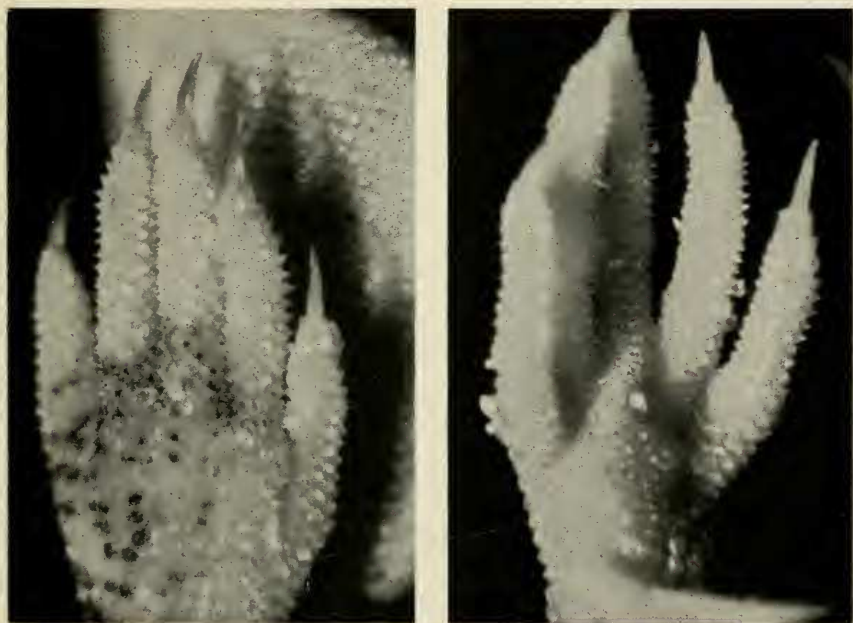


Figure 3. *Stenodactylus slevini* Haas, new species. Upper and lower sides of hand of CNHM 74026.

## MEASUREMENTS OF HOLOTYPE AND ALLOTYPE (in mm.):

	Holotype (CAS 84592)	Allotype (CAS 84540)
Total length .....	105.5	104.5
Length of head .....	17.5	16.5
Length of tail .....	40.0	36.0

REMARKS: Paratype CNHM 74026, a female, differs from the two other specimens in having a remarkably pointed and more flattened head; it otherwise resembles the allotype. The forelimb does not extend beyond the tip of the snout; it ends between the snout and the anterior border of the eye.

This species differs from *Stenodactylus elegans* in having an accessory series of tricarinate scales between the lateral fringes and the transversely enlarged median series of scales beneath the fingers and toes. Corresponding in this respect with *S. petri*, *S. slevini* differs from *S. petri* in the gradually tapering tail, in habitus, and in lepidosis.

***Stenodactylus arabicus* Haas, new species.**

(Figure 4.)

HOLOTYPE: HUJ 2678, female, from Lat. 24°10' N., Long. 53° E., on the Trucial Coast, Saūdi Arabia, collected December 31 (year unknown), by Desmond Vesey-Fitzgerald.

DESCRIPTION: Snout rather pointed; nostrils open on top of almost tubular swellings; internasal depression slight; postnasal depression deep. Head much narrower than in *Ceramodactylus major*. Rostral deeply cleft. First labial widely excluded from nostril; latter shield defined by the rostral and 3 nasals. Inner nasals meet near the suture of the rostral; rostral forms antero-ventral circumference of nostril, and is as high as wide. Upper labials 15/15; lower labials 13/13. Mental slightly longer than wide, with lateral borders somewhat converging posteriorly; the slightly convex border does not bulge beyond first infralabials. No chin shields. Head scales (polyhedral tubercles) rugose, flattened, largest at base of snout in front of eyes. Dorsal scales subimbricate, elongate, cycloid, perfectly smooth, as are the scales on upper side of limbs. Scales on flanks more cycloid, tubercular, juxtaposed. Ventral scales clearly juxtaposed, slightly rugose, not keeled, much larger than gular scales. Caudal scales arranged dorsally in transverse whorls, with dorso-median irregularities corresponding to an irregular ventro-median seam; dorsally, scales keeled only on distal half of tail; subcaudal scales smooth, with parallel transverse borders, keeled at distal half of tail. The tail tapers very gradually

from the insignificant basal swelling to an extremely slender, whip-like end. Limbs very slender; anterior limb, extended forward, reaches beyond tip of snout; adpressed backward, it reaches the groin. At both sides of root of tail a cluster of 3 to 4 conical, enlarged scales are present. Lateral digital fringes not prominent; the individual scales bicuspid. The medial, transversely enlarged series of subdigital scales bear 3 longitudinal keels; between these and the lateral fringes, a single row of triangular scales intervenes, as in *S. petri*.

Color of upper side very pale; some irregular, disconnected, dark, wavy linear markings obscurely cross the dorsum, mostly interrupted and irregularly arranged. Some isolated dark spots present on head, but not on snout. Tail with about 10 brown transverse bars with dark borders against the pale ground color. No markings on limbs. Ventral side white.

MEASUREMENTS OF HOLOTYPE (in mm.): Total length 104; length of tail 37; length of head 16; width of head 11; forelimb 21; hindlimb 28.

REMARKS: This species differs from the similar *Stenodactylus petri* in the arrangement of the scales around the nostril, and in coloration and body proportions. However, the two species have a similar arrangement of the subdigital scales.



Figure 4. *Stenodactylus arabicus* Haas, new species. Upper side of hand of HJ 2678.

Genus *Ceramodactylus* Blanford*Ceramodactylus major* Parker.

(Figure 5.)

*Ceramodactylus major* PARKER, 1930, Ann. Mag. Nat. Hist., (10), 6:594 (Rub'al Khali, Hadramaut, Saūdi Arabia).

MATERIAL EXAMINED (27): CAS 84266, 84509, 84514, 84522-84523, 84525, 84528, 84558, 84590, 84595, and CNHM 74013, from Dhahran, collected in 1946, by Gasperetti; CAS 84361-84368, 84370-84372, 84374, 84482, and CNHM 74014, from Abqaiq, collected in 1945-1946, by Gasperetti; HUI 2677, from Sharja, Trucial Coast, collected in 1944, by Vesey-Fitzgerald; HUI 2676, from 23 miles north of Hail, collected in 1944, by Waterston.

REMARKS: The series from Dhahran and Abqaiq is rather homogeneous, but there is variation in the number of transverse subdigital scales, which ranges from 5 to 8. The largest specimen, CAS 84522, a female, has a total length of 137 mm., and a tail length of 66 mm. This is smaller than the type which measured 152 mm. in total length and 72 mm. in tail length. The inner nasals may or may not be in contact.

All of these specimens belong certainly to this species and cannot be

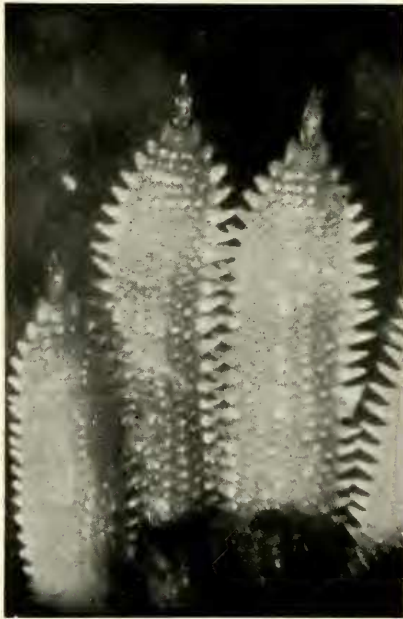


Figure 5. *Ceramodactylus major* Parker. Underside of fingers of CNHM 74014.

referred to *C. doriae*, as they have well developed digital fringes and rugose scales.

The two specimens in the Hebrew University collection are from localities more than 800 miles apart. The Sharja specimen corresponds fairly well with the series from the Bahrein area, but the specimen from Hail has a very pale coloration compared with the series from the Bahrein area.

This specimen from Hail, HUI 2676, has a buff ground color; whitish ocelli are present on the flanks and head; the darker markings on the upper side are very faint. The first supralabial is excluded from the nostril; the rostral and third nasal are narrowly in contact. The nostrils are swollen as in typical specimens; five series of ventral scales are present under the third finger. It is best to consider this aberrant specimen from Hail as belonging to *C. major*.

### ***Pseudoceramodactylus* Haas, new genus**

TYPE SPECIES: *Pseudoceramodactylus khobarensis* Haas.

DEFINITION: Somewhat intermediate between *Teratoscincus* Strauch and *Ceramodactylus* Blanford. Digits not dilated; furnished with a long, thin, curved claw; not depressed; ventral side bulging, wider than dorsal surface; covered inferiorly between the lateral fringes (formed by pointed scales) by regularly disposed diagonal series of uniform, sharply pointed, minute, juxtaposed scales (about 14 in one diagonal series). Body covered dorsally with equal, cycloid to hexagonal, smooth, juxtaposed, flat scales. Head scales smooth, as are the triangular, elongate, deeply imbricate ventrals. No preanal or femoral pores in males. Pupil vertical. Nostrils remarkably swollen, on a turret-like prominence. A pair of chin shields in contact with the pointed, very elongate mental; mental extends beyond the first infralabials.

### ***Pseudoceramodactylus khobarensis* Haas, new species.**

(Figures 6 and 7.)

HOLOTYPE: CAS 84458, male, from Al Khobar, Saūdi Arabia, collected June 5, 1946, by John Gasperetti.

PARATYPES (6): CAS 84459, allotype, collected June 5, 1946; CAS 84462, female, collected June 6, 1946; CAS 84461, female, collected June 6, 1946; CAS 84460, female, collected June 5, 1946; CNHM 73994, male, collected May 30, 1946; all specimens from the type locality, collected by Gasperetti. CAS 84431, male, from Dammam, collected May 30, 1946, by Gasperetti.

DESCRIPTION: Habitus of a slender *Stenodactylus*, with remarkably swollen nasal area, strong neck constriction, and slender legs with rather short fingers. Head rather elongate; snout longer than distance between eye and ear opening; latter rounded, its vertical diameter contained three times in horizontal diameter of orbit. Rostral as broad as high, cleft dorsally for two-thirds of its length. Granules on snout small, largest dorso-medially behind rostral and in front of orbits, gradually diminishing in size toward frontal area. Nostrils directed somewhat upward, at top of a turret-like prominence, defined by rostral and 3 nasals. First labial widely excluded from nostril border. Inner nasals separated by 2 granules. Upper labials 9/10; lower labials 9/8. Mental one and two-thirds times as long as broad, with lateral borders strongly curved toward the first labials, and with a triangular continuation beyond them which is flanked on either side by elongate postmentals; postmentals meet medially behind mental. Gular tubercles largest near mental, postmentals, and infra-labials; they diminish in size posteriorly. The two series of largest gular tubercles, those bordering the infralabials and those bordering the postmentals, meet behind the mental and postmentals, and form a belt as wide as the length of the mental.

The back and upper side of the limbs covered by rather large, juxta-

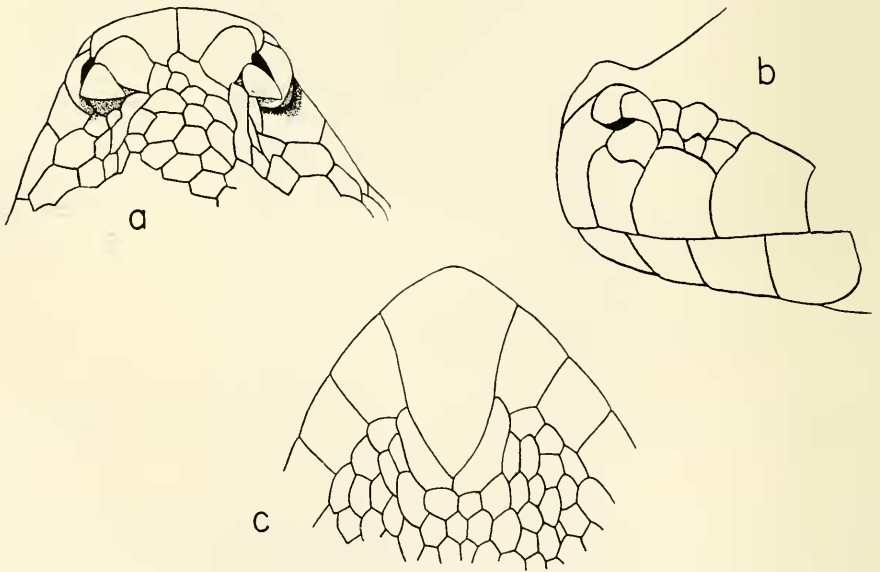


Figure 6. *Pseudoceramodactylus khobarensis* Haas, new species. a) Dorsal view of snout of CNHM 73994. b) Lateral view of snout of CAS 84462. c) Mental region of CAS 84458, holotype.

posed, flat, and smooth, rounded tubereles; these are polyhedral in shape on top of the head. Ventral scales form chevron-like, transverse, sub-imbriate series, with posteriorly open angle; the scales are cycloid and smooth, largest in the pelvic area. The mid-ventrals are bigger than the mid-dorsals; the lateral scales are smaller than the mid-dorsals. Between the round gular tubereles and the flattened pectorals there is a region covered with elongate, juxtaposed tubereles. The scales in the pectoral region are much smaller than those in the pelvic area. On the tail the scales of the anterior third are irregularly arranged; beyond this region they form annuli; this arrangement is somewhat irregular mid-dorsally, and to a slight degree mid-ventrally. Very strong hemipenial swellings present in the male. In both sexes a cluster of enlarged scales is present at either side of the root of the tail (better developed in the male); each cluster consists of about 5 triangular scales whose pointed ends project upward; in the male they are imbricate and are at least four times larger than the adjacent normal scales; in the female the scales of the cluster are only three times as large as the surrounding ones.

Adpressed forelimb reaches the groin; adpressed hindlimb reaches the anterior border of the pectoral girdle; the outstretched forelimb reaches

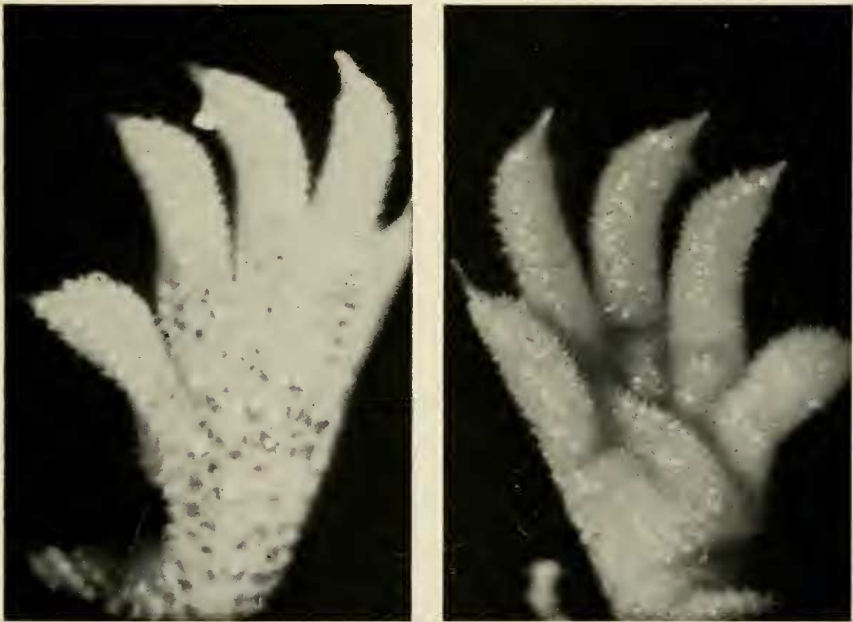


Figure 7. *Pseudoceramodactylus khobarensis* Haas, new species. Upper and lower sides of hand of CAS 84459.

the tip of the snout. Upper side of fingers covered by slanting series of approximately 7 flat, imbricate scales. At the base of the claws, at the tips of the fingers, a transversely enlarged scale is present ventrally; this is followed by another scale of similar shape, but much narrower. About 14 minute, pointed, thorn-like, juxtaposed scales occur in regular diagonal series from one lateral fringe to the other. Third and fourth fingers are of almost equal length; the first is shorter than the fifth. First and fifth toes end at about the same level; fourth toe slightly longer than the third.

The tail tapers very gradually and does not form a whip-like end portion.

MEASUREMENTS OF HOLOTYPE AND ALLOTYPE (in mm.):

	Holotype (CAS 84458)	Allotype (CAS 84459)
Total length .....	89	95
Tail length .....	37	40
Length of forelimb .....	21	24
Length of hindlimb .....	29	30
Length of head .....	15	15
Width of head .....	9.5	9.5

REMARKS: In the allotype (female), CAS 84459, there is a black, irregular, reticulate pattern, leaving more or less circular bright ocelli; several dark cross-bands are present on the tail, the spaces between them more or less mottled; body white ventrally, with darker specks on the lateral and anterior gular region; anterior pectoral area with an ill-defined transverse dark marking; markings on ventral side of the tail resemble the dorsal ones, but are fainter; scattered single dark scales are present on the underside of the limbs.

In the holotype (male), CAS 84458, the dark dorsal markings show some "condensations" in the form of ill-defined transverse bands on the occiput, neck, and pectoral area, with two bands across the body followed by 6 to 7 cross-bands on the tail. Ventral surface as in the female, but dark areas are fainter.

In both specimens small dark spots are present on the supra- and infra-labials; tubercles on the head are usually entirely either bright or dark.

Genus **Alsophylax** Fitzinger

**Alsophylax blanfordi** (Strauch).

*Bunopus blanfordii* STRAUCH, 1887, Mém. Acad. Sci. St. Pétersbourg, (7) 35:61: pl. 1, figs. 13-14 (Egypt [in error]: designated as Arabia [Schmidt, 1939, Field Mus. Nat. Hist., Zool. ser., 24:55]).

*Alsophylax blanfordii* PARKER, 1931, Ann. Mag. Nat. Hist., (10) 8:519.



MATERIAL EXAMINED (4): CAS 84341, from Abqaiq, collected in 1945, by Gasperetti; CNHM 73993, from Dhahran, collected in 1946, by Gasperetti; HUI 2686, from Tebuk, collected in 1942, by Hardy; HUI 2687, from central Arabia, collected in 1942, by Hardy.

REMARKS: The single male, CAS 84341, has 15 preanal pores. In the specimen from Tebuk, HUI 2686, a female, the dorsal scales are more strongly keeled and more closely juxtaposed, especially in the temporal region, than in the remaining specimens.

### Genus *Gymnodactylus* Spix

#### *Gymnodactylus scaber* (Heyden).

*Stenodactylus scaber* HEYDEN, 1827, in Rüppell, Atlas Reise nörd. Afrika, Rept., p. 15, pl. 4, fig. 2 (vicinity of Tor, Sinai).

*Gymnodactylus scaber* DUMÉRIE and BIBRON, 1836, Erp. Gén., 3:421.

MATERIAL EXAMINED (14): CAS 84480, 84483, from Abqaiq, collected in 1946, by Gasperetti; CAS 84389-84390, from Al Khobar, collected in 1945, by Gasperetti; CAS 84439, from Ras at Tanura, collected in 1946, by Gasperetti; CAS 84275-84276, 84512, 84517, 84532-84533, 84538, and CNHM 74018-74019, from Dhahran, collected in 1945-1946, by Gasperetti.

REMARKS: The preanal pores vary from 4 to 6; three specimens, of the fourteen, have 3 pairs of chin shields instead of the usual 2 pairs.

### Genus *Pristurus* Rüppell

#### *Pristurus carteri carteri* (Gray).

*Spatialura carteri* GRAY, 1863, Proc. Zool. Soc. London, 1863:236: pl. 20, fig. 2 (Makulla, southern Arabia; corrected to Masirah Island [Parker, 1931, p. 515]).

*Pristurus carteri carteri* PARKER, 1931, Ann. Mag. Nat. Hist., (10) 8:515.

MATERIAL EXAMINED (1): HUI 2694, from Dhufar (at sea level), collected in 1945, by Vesey-Fitzgerald.

REMARKS: This specimen is much paler than specimens of *Pristurus carteri tuberculatus*. The nostril is set between a large crescentic anterior nasal and the first labial, the gap being closed by a minute posterior nasal. The ear-opening is an oblique slit. The snout is more pointed in profile than in *P. c. tuberculatus*.

**Pristurus carteri tuberculatus** Parker.

*Pristurus carteri tuberculatus* PARKER, 1931, Ann. Mag. Nat. Hist., (10) 8:515 (Dhufar, littoral [Ain al Rizat, Milwah Alaud, and Sahalnaut]).

MATERIAL EXAMINED (3): HUJ 2685, 2695-2696, from Jebel Qara (2000 feet altitude), collected in 1943, by Vesey-Fitzgerald.

REMARKS: HUJ 2685 and 2696 have clearly enlarged lateral tubercles; in HUJ 2695 these are feebly developed and are restricted to the lumbar region.

**Pristurus rupestris rupestris** Blanford.

*Pristurus rupestris* BLANFORD, 1874, Ann. Mag. Nat. Hist., (4) 13:454 (Muscat and Kharag Island; restricted to Muscat [Schmidt, 1952, Nat. Hist. Misc., no. 7, p. 2 and 1955, Vidensk. Medd. fra Dansk. naturh. Foren., 117:202]).

*Pristurus rupestris rupestris* SCHMIDT, 1953, Fieldiana: Zoology, 34:256.

MATERIAL EXAMINED (2): HUJ 2688, 2693, from Dhufar (at sea level), collected in 1945, by Vesey-Fitzgerald.

REMARKS: The female specimen has a light vertebral line, and the male has the normal dorsal ocellate pattern.

Genus **Hemidactylus** Oken**Hemidactylus persicus** Anderson.

*Hemidactylus persicus* ANDERSON, 1872, Proc. Zool. Soc. London, 1872:378: fig. 2 (Shiraz, Persia).

MATERIAL EXAMINED (1): CAS 84388, from Al Khobar, collected in 1945, by Gasperetti.

REMARKS: The 8 preanal pores are arranged in an angular series, with the apex directed forward; 9 lamellae are present beneath the inner finger, and 11 beneath the third finger; 8 lamellae are present beneath the inner toe, and 11 beneath the third toe (Boulenger [1885, p. 131] gives, respectively, 10 and 10, and 9 and 12). The rostral is not fused with the first labials.

Genus **Ptyodactylus** Gray**Ptyodactylus hasselquisti** (Donndorff).

*Lacerta hasselquistii* DONNDORFF, 1789, Zool. Beytr., 3:133 (Egypt).

*Ptyodactylus hasselquistii* DUMÉRIL and BIBRON, 1836, Erp. Gén., 3:378.

MATERIAL EXAMINED (1): CAS 84591, from Dhahran, collected in 1946, by Gasperetti.

REMARKS: The variability in this species is astonishing. The present specimen differs conspicuously from Palestinian ones, but a definite subspecific classification is not yet feasible.

There are 15 supralabials in this specimen as compared with 14, the usual number in Palestinian specimens; also, 11 infralabials are present, compared with 13 to 15 in the Palestinian form. The inner chin shields are very elongate, three times longer than broad; they meet behind the mental for one-third of their total length (in specimens from Palestine they are always short and separated from one another). The inner enlarged pair of chin shields is followed by enlarged, posteriorly decreasing postmentals, 4 on the right side and 5 on the left. The head, seen from above, is much narrower than in Palestinian specimens. The dorsal tubercles are flatter and larger in the Arabian specimen. The ventral scales of the tail form about 6 transverse series in every annulus as compared with 4 in the typical form.

MEASUREMENTS (in mm.): Snout-vent length 70.5; tail length 60.

#### Family AGAMIDAE

#### Genus *Agama* Daudin

#### *Agama sinaita* Heyden.

*Agama sinaita* HEYDEN, 1827, in Rüppell, Atlas Reise nörd. Afrika, Rept., p. 10, pl. 3 (Sinai).

MATERIAL EXAMINED (4): HUI 2702-2703, from Tebuk, Jauf Mountains, collected in 1942, by Hardy; HUI 2704, from north of Jebel Aja, collected in 1944, by Waterston; HUI 2705, from Jebel Aja, west of Hail, collected in 1944, by Waterston.

REMARKS: The terrain north of Jebel Aja is designated as rock and shrub; at Jebel Aja, it is granite rock. The lizards were active in the heat of the afternoon. The 4 specimens agree closely with specimens from southern Palestine.

#### *Agama pallida* Reuss.

*Agama pallida* REUSS, 1834, Mus. Senck., 1:38: pl. 3, fig. 3 (upper Egypt).

MATERIAL EXAMINED (3): CAS 84610, and CNIM 74017, from Dhahran, collected in 1946, by Gasperetti; HUI 2701, from north of Jebel Aja, collected in 1944, by Waterston.

REMARKS: In CAS 84610, the enlarged dorsals are smooth, and are as wide as 4 small dorsals; there are 7 small dorsals in a longitudinal line between the enlarged dorsals. In CNHM 74017, the enlarged dorsals are keeled, smaller, and more numerous, with only 4 or 5 small dorsals between them.

***Agama agilis* Oliver.**

*Agama agilis* OLIVER, 1804, Voy. Emp. Ottoman, 4:394: pl. 29, fig. 2 (Baghdad, Iraq).

MATERIAL EXAMINED (1): CAS 84416, from Qatif, collected in 1945, by Gasperetti.

MEASUREMENTS (in mm.): Total length 220; tail length 125.

***Agama persica* Blanford.**

*Agama persica* BLANFORD, 1881, Proc. Zool. Soc. London, 1881:674: pl. 49 (Deh Bid and Kazerun, Iran).

MATERIAL EXAMINED (11): CAS 84417, from Qatif, collected in 1945, by Gasperetti; CAS 84477, 84491–84492, from Abqaiq, collected in 1946, by Gasperetti; CAS 84516, 84541, 84611, 84613–84614, and CNHM 74015–74016, from Dhahran, collected in 1946, by Gasperetti.

REMARKS: All the males in this series have a single row of false pre-anal pores, as indicated in Blanford's original description, not two rows, as stated by Boulenger (1885, p. 345). Eight of the specimens at hand (of both sexes) have a vertebral band of rather small keeled scales clearly set off from the larger lateral scales. CAS 84611 does not exhibit the row of smaller mid-dorsal scales; CAS 84477, from Abqaiq, and CNHM 74015, from Dhahran, are intermediate. Some specimens have remarkably long tails; CAS 84477, a male, has a total length of 264 mm., and a tail length of 167 mm.

In specimen CAS 84477, four longitudinal dark brown stripes fuse with the dark area on the upper side of the head. A broad dark band links the posterior angle of the orbit with the ear opening. Above this there is another stripe at the upper border of the temporal region. The gular region is black. The sides of the back and belly are black; medio-ventrally, from the anterior border of the pectoral girdle to the anterior border of the pelvic girdle, there is a slightly paler dark stripe; the rest of the belly is lighter. On the back there are two indistinctly defined longitudinal series of rectangular dark spots. The tail is very light, with very faint transverse gray cross-bars, which are much narrower than the light intervals. The dark upper side of the body contrasts strikingly with the light tail.

**Agama jayakari** Anderson.

*Agama jayakari* ANDERSON, 1896, *Contri. herpet. Arabia*, p. 65, (Maskat).

MATERIAL EXAMINED (2): H.U.J. 2699–2700, from Shinas, Batinah Coast, collected in 1944, by Vesey-Fitzgerald. (H.U.J. 2700 is without a field label.)

REMARKS: These specimens differ from the original description in having 77 scales around the body, instead of 90; in having the ear opening larger than the eye, instead of smaller; and in the considerably larger size. The male specimen, H.U.J. 2699, measures 360 mm. total length, and 207 mm. tail length; the female, H.U.J. 2700, measures 298 mm. total length, and 165 mm. tail length. In corresponding measurements, the largest male and female in Anderson's series measured respectively 316 mm. and 178 mm., and 266 mm. and 151 mm.

The male specimen has no preanal pores, and has a much larger gular pouch. Further description of this form is deferred for comparison with more extensive material of *Agama jayakari*.

Genus **Phrynocephalus** Kaup**Phrynocephalus arabicus** Anderson.

*Phrynocephalus arabicus* ANDERSON, 1894, *Ann. Mag. Nat. Hist.*, (6) 14:377 (Haramout).

MATERIAL EXAMINED (5): H.U.J. 2706–2710, from Abu Dhabi, collected in March, 1944, by Vesey-Fitzgerald. (H.U.J. 2710 is without a field label.)

REMARKS: This series agrees fairly well with the original description of *P. arabicus*. The dorsal surfaces of the limbs in H.U.J. 2709 and 2710 are covered with keeled scales. The adlabial series of scales (adjacent to the lower labials) does not reach the first lower labial or the mental; the next series extends to the mental and first labial. The adlabials of *P. nejdensis* are better developed and reach the first labial. There are 3 or 4 more or less distinct dark cross-bands beneath the tail; the distal third of the tail is invariably black.

MEASUREMENTS OF H.U.J. 2710 (gravid female) (in mm.): Total length 72; tail length 38.

**Phrynocephalus maculatus longicaudatus** Haas, new subspecies.

HOLOTYPE: CAS 84449, male, from Doha Dhalum, Saudi Arabia, collected July 22, 1946, by John Gasperetti.

PARATYPES (14): CAS 84442-84448, 84450-84452, 84455, and CNHM 74021-74022, from the type locality, collected in 1946, by Gasperetti; CAS 84511, from Dhahran, collected in 1946, by Gasperetti.

DIAGNOSIS: Differs from *Phyrnocephalus maculatus maculatus* in having the posterior supraorbital scales strikingly flattened and enlarged, longer than wide, and larger than the mid-dorsal scales; a few dorsal scales are keeled or with an indication of mucronation; nostrils are directed forward instead of upward; tail is longer than twice the distance from the gular fold to the vent; dark coloration of the distal part of the tail is pronounced ventrally.

MEASUREMENTS (in mm.):

	Holotype				
	CAS 84449 ♂	CAS 84442 ♂	CAS 84443 ♂	CAS 84444 ♀	CNHM 74022 ♀
Total length..	196	187	186	159	171
Tail length ...	124	114	114	96	105

***Phyrnocephalus nejdensis* Haas, new species.**

HOLOTYPE: HUUJ 2711, male, from Nafud, near Qana, North Nejd, WNW of Hail, Saūdi Arabia, collected May 19, 1944, by A. R. Waterston.

DIAGNOSIS: Related to the *P. luteoguttatus-arabicus* group, differing from them in the small size of the gular scales, smaller ventrals and proximal subcaudals, higher numbers of upper and lower labials, and flatness of the dorsal head scales.

DESCRIPTION OF TYPE: Scales on snout juxtaposed, somewhat imbricate in the supraocular, frontal, and temporal areas; each dorsal scale on the snout with a pit near its anterior border; these pits are absent in the upper labial region; nostrils between 2 crescent-shaped nasals, directed forward, not upward; 2 scales, one behind the other, between the 2 pairs of nasals; 8 longitudinally ridged supraoculars on the left side, 9 on the right side; rostral not differentiated; 14 upper labials on each side, the posterior ones enlarged; 14 lower labials on each side, each with 2 or 3 pits in its lower border; 2 chin shields in contact with the lower labials (thus different from *P. luteoguttatus*) and 2 with the enlarged mental; 3 series of scales between the orbit and upper labials; 4 scales between the anteroventral border of the first nasal and the series of upper labials; 12 very prominent fringe-like scales on the lower eyelid; a group of about 4 longitudinally set conical scales present above the tympanic area; enlarged occipital shield equals about 3 of the adjacent scales; the wrist of the extended forelimb reaches the snout; extended backward, the fingertips of the forelimb reach the middle of the backward extended thigh; hind

leg, stretched forward, extends well beyond the tip of the snout; claws long, strongly compressed laterally, weakly curved, 3 mm. long on the fourth finger.

The subequal dorsals and upper nuchals are feebly keeled and imbricate; juxtaposed, flat tubercles present toward the root of the tail; scales narrower, but not shorter, at the sides, granular in the axilla and in the groin; proximal upper caudals larger than largest dorsals; more distal caudals sharply keeled and elongate; gulars imbricate and pointed, gradually diminishing in size posteriorly; ventrals mucronate, some of them indistinctly keeled; scales on upper sides of limbs smooth, larger than those on the back; subcaudals smaller than ventrals.

Counted perpendicularly to the tiers of the scales, there are, in a length of 5 mm., 12 gular scales (gular region), 6 ventrals (pectoral area), 12 dorsals (mid-body), and 10 dorsals (at base of tail). There are about 115 scales around the middle of the body.

Dorsally, there is a fine gray reticulum enclosing round yellow spots; upper sides of limbs with transverse bars; posterior half of tail blackish, with faint darker cross-bands; a series of black spots present on each side of the anterior portion of the tail; the ocellate pattern of the back continues onto the anterior part of the tail; the latter is uniformly gray distally. Ventral surface white; collar region yellow with longitudinal gray stripes.

MEASUREMENTS OF HOLOTYPE (in mm.): Total length 116; tail length 62; forelimb 32; hindlimb 50.

REMARKS: *Phrynocephalus nejdensis* is related to *P. luteoguttatus*; the latter has a longer tail and has the medial gular scales smaller than the ventrals.

### ***Phrynocephalus nejdensis macropeltis* Haas, new subspecies.**

HOLOTYPE: CAS 84619, male, from Dhahran, Saūdi Arabia, collected in 1946, by John Gasperetti.

PARATYPES (48): CAS 84287-84290, 84292, 84294-84295, 84297, 84379-84387, 84479, 84484-84485, from Abqaiq, collected in 1945-1946, by Gasperetti; CAS 84262-84263, 84277-84278, 84280-84281, 84283-84286, 84502, 84510, 84513, 84536, 84542-84543, 84545, 84547, 84617-84618, 84620, 84622-84623, and CNHM 73998-73999, from Dhahran, collected in 1945-1946, by Gasperetti; CAS 84421, from Shimal, collected in 1946, by Gasperetti; CAS 84432, 84437, from El Alat, collected May 31, 1946, by Gasperetti.

DIAGNOSIS: Differs from *Phrynocephalus nejdensis nejdensis* in having larger ventral scales, about 90 scales around the middle of the body (com-

pared with 115 in the typical subspecies), head scales more bulging, and some of the pectoral scales keeled.

DESCRIPTION: Habitus of *Phrynocephalus*; the adpressed forelimb extends backward beyond the groin; the adpressed hindlimb extends forward to the anterior angle of the orbit; the tail is slightly longer than the head and body together.

Dorsal scales are nearly uniform, wider than long, a very few slightly enlarged, some feebly keeled; anterior ventral scales are keeled and mucronate, but not in all specimens; gular scales smooth, pointed, larger than the dorsals; caudal scales keeled from the first third of the tail to its tip.

Fringes present on both sides of the third and fourth fingers and toes, and are longest on the outer side of the fourth toe; claws very long (in one large specimen, the claw on the fifth toe measured 4 mm. in length), shorter on the fingers than the toes.

Two parallel transverse folds present on the neck; a lateral cervical fold extends to the groin.

Color variable, some specimens nearly uniform, either dark or light, others with an ocellate pattern, or mottled; last third of the tail is black below, less uniformly so above.

MEASUREMENTS OF HOLOTYPE (in mm.): Total length 114; tail length 58.

### Genus *Uromastix* Merrem

#### *Uromastix microlepis* Blanford.

*Uromastix microlepis* BLANFORD, 1874, Proc. Zool. Soc. London, 1874: 656: pl. 53 (Basra, Iraq).

MATERIAL EXAMINED (6): CAS 84430, from Jebel Dam, collected in 1946, by Gasperetti; CAS 84575–84577, and CNHM 73989, from Dhahran, collected in 1946, by Gasperetti; IJHJ 2698, from Sakaka, collected in 1945, by Hardy.

### Family VARANIDAE

#### Genus *Varanus* Merrem

#### *Varanus griseus* (Daudin).

*Tupinambis griseus* DAUDIN, 1803, Hist. Nat. Rept., 8:352 (Egypt).

*Varanus griseus* BOULENGER, 1885, Cat. Lizards Brit. Mus., 2:306.

MATERIAL EXAMINED (8): CAS 84298, 84300–84302, 84473, and CNHM 74020, from Abqaiq, collected in 1945, by Gasperetti; CAS 84267, from



Doha Dhalum, collected in 1945, by Gasperetti; CAS 84422, from Shimal, collected in 1946, by Gasperetti.

REMARKS: Specimen CAS 84422 is a handsomely colored juvenile. The adult specimens are of moderate size, none attaining the maximum of 1200 mm. recorded for this species.

Family AMPHISBAENIDAE

Genus **Diplometopon** Nikolsky

**Diplometopon zarudnyi** Nikolsky.

(Figure 8.)

*Diplometopon zarudnyi* NIKOLSKY, 1907, Ann. Mus. Zool. Acad. Sci. Petrograd, 10:277: figs 1-3 (Nasrie, Arabistan, Iran).

MATERIAL EXAMINED (29): CAS 84274, 84406, 84529, 84534, 84539, 84559, 84588, and CNHM 74007, from Dhahran, collected in 1945-1946, by Gasperetti; CAS 84343-84355, 84373, and CNHM 74008, from Abqaiq, collected in 1945, by Gasperetti; CAS 84426, from Shimal, collected in 1946, by Gasperetti; CAS 84454, from Doha Dhalum, collected in 1946, by Gasperetti; HUI 2690-2692, from between Hadj and Tebuk, collected in 1942, by Hardy; HUI 2689, from Sharja, collected in 1944, by Vesey-Fitzgerald.

REMARKS: Most of the specimens do not show a dorsal impressed line, but the annuli are interrupted on the mid-dorsal line by 2 triangular

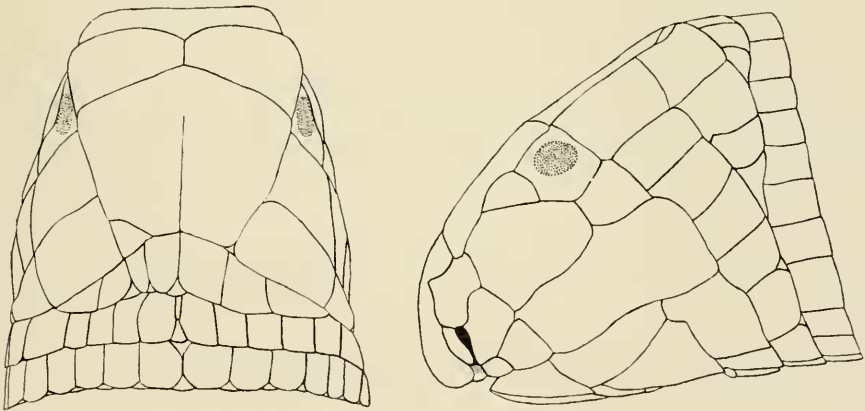


Figure 8. *Diplometopon zarudnyi* Nikolsky. Dorsal and lateral views of head of HUI 2696.

scales meeting at their apices. Ventrally, a deep median groove is always present. CAS 84345 has a completely divided frontal.

Family LACERTIDAE

Genus **Acanthodactylus** Wiegmann

**Acanthodactylus scutellatus hardyi** Haas, new subspecies.

*Acanthodactylus scutellatus* PARKER, 1931, Ann. Mag. Nat. Hist., (10) 8:521.

HOLOTYPE: HUIJ 2682, from Hirmas Station, Saudi Arabia, collected December 15, 1942, by J. E. Hardy.

DIAGNOSIS: Differs from *Acanthodactylus scutellatus scutellatus*, the form found in Egypt and Palestine, in having the dorsal scales entirely smooth, 12 ventral plates across the belly instead of 14, fourth supraocular broken up into granules, no enlarged anterior gular scales bordering the chin shields, prefrontals only slightly longer than broad, median suture of nasals very short, and the temporal granules completely smooth.

REMARKS: Parker (1931) records *Acanthodactylus scutellatus* from southern Arabia. In the conspicuous character of the number of scales across the belly, his specimen agrees with ours. He, also, suspected a distinguishable geographic race in southern Arabia.

**Acanthodactylus fraseri** Boulenger.

*Acanthodactylus fraseri* BOULENGER, 1918, Jour. Bombay Nat. Hist. Soc., 25:373 (Zobeiya, Shariba, Iraq).

MATERIAL EXAMINED (10): CAS 84271, 84596, from Dhahran, collected in 1945-1946 by Gasperetti; CAS 84333, 84338-84339, 84486, and CNHM 73987-73988, from Abqaiq, collected in 1945-1946, by Gasperetti; CAS 84433, 84436, from El Alat, collected in 1946, by Gasperetti.

REMARKS: These specimens have 4 supraoculars in front of the suboculars; the subocular reaches the labial border. *Acanthodactylus fraseri* is smaller than *A. cantoris*.

**Acanthodactylus cantoris schmidti** Haas, new subspecies.

HOLOTYPE: CAS 84599, male, from Dhahran, Saudi Arabia, collected in 1946, by John Gasperetti.

PARATYPES (24): CAS 84268–84270, 84530, 84598, 84600–84606, 84608–84609, and CNHM 74010–74011, from Dhahran, collected in 1945–1946, by Gasperetti; CAS 84332, 84336–84337, 84340, 84342, from Abqaiq, collected in 1945–1946, by Gasperetti; CAS 84419, from Qatif, collected in 1945, by Gasperetti; CAS 84423, from Shimal, collected in 1946, by Gasperetti; HUI 2691, from north of Tebuk, collected in 1942, by Hardy.

DIAGNOSIS: Larger than *Acanthodactylus cantoris arabicus*; dorsal pattern reticulate instead of lineate; in the dorsolateral band of strongly keeled scales, the scales are about twice the size of the dorsals between them; the difference in size of these scales is most pronounced in the adult males.

MEASUREMENTS (in mm.):

	Holotype CAS 84599 ♂	HUI 2681 ♂
Total length .....	241	281
Tail length .....	160	187

Genus **Eremias** Wiegmann

**Eremias brevirostris** (Blanford).

*Mesalina brevirostris* BLANFORD, 1874, Ann. Mag. Nat. Hist., (4) 14:32 (Kalabagh, Punjab, and Tumb Island, Persian Gulf. Restricted by Schmidt, 1939, Field Mus. Nat. Hist., Zool. Ser., 24:66, to Kalabagh, Punjab).

*Eremias brevirostris* BOULENGER, 1887, Cat. Lizards Brit. Mus., 3:89.

MATERIAL EXAMINED (14): CAS 84391–84392, 84394–84395, 84397–84402, 84404, and CNHM 73990–73991, from Dammam, collected in 1945, by Gasperetti; HUI 2679, from central Arabia, collected in 1942, by Hardy.

REMARKS: The proposal of a Syrian subspecies, *Eremias brevirostris microlepis*, by Angel (1936, p. 112), based upon specimens lifted out of a series of supposedly typical *E. brevirostris*, is certainly not adequately established.

**Eremias guttulata guttulata** (Lichtenstein).

*Lacerta guttulata* LICHTENSTEIN, 1823, Verz. Doubl. Mus. Berlin, p. 101 (Egypt).

*Eremias guttulata guttulata* WETTSTEIN, 1928, Sitzber. Akad. wiss. Wien, (math.-natur.), 137: Abt. 1:782.

MATERIAL EXAMINED (1): HUI 2683, from central Arabia, collected in 1942, by Hardy.

**Eremias adramitana** Boulenger.

*Eremias adramitana* BOULENGER, 1917, Ann. Mag. Nat. Hist., (8) 19:279 (Hadramaut).

MATERIAL EXAMINED (1): HUI 2680, from Abu Dhabi, collected in 1944, by Vesey-Fitzgerald.

## Family SCINCIDAE

Genus **Eumeces** Wiegmann**Eumeces taeniolatus** (Blyth).

(Figure 9.)

*Eurylepis taeniolatus* BLYTH, 1854, Jour. Asiatic Soc. Bengal, 23:470 (Salt Range, Punjab, India).

*Eumeces taeniolatus* STOLICZKA, 1872, Proc. Asiatic Soc. Bengal, 1872:75.

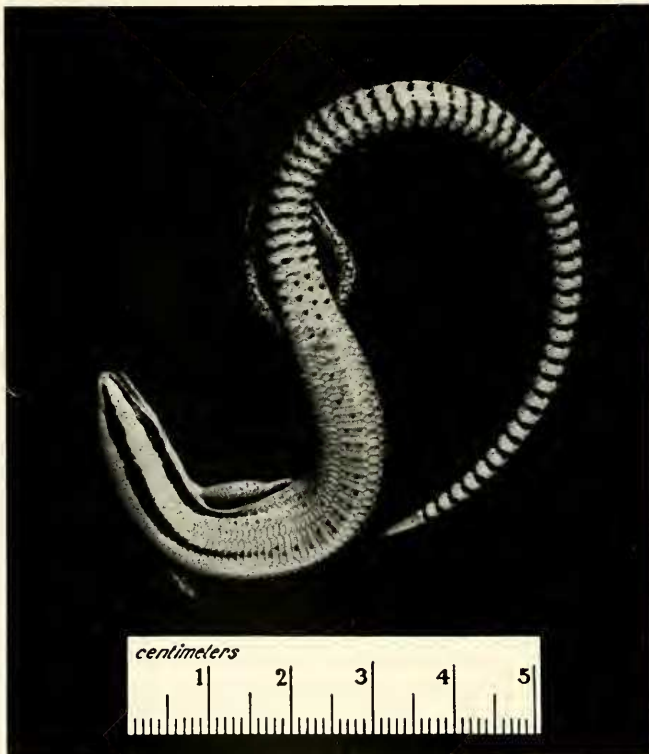


Figure 9. *Eumeces taeniolatus* (Blyth). Dorsal view to show distinctive color pattern.

MATERIAL EXAMINED (1): HUIJ 2670, from 23 miles north of Hail, collected in 1944, by Waterston.

REMARKS: This distinct species, described from India, is represented in the collections of the British Museum by specimens from Arabia. These come from El Khubar, southwest Arabia, and from Muscat. The remarkable color pattern is shown in the accompanying figure. Our specimen has 9/8 upper labials, 58 transversely widened mid-dorsal scales, and 19 scale rows around the body.

Malcolm Smith (1935, p. 342) has shown that *Eumeces scutatus* (Theobald) is a strict synonym of *Eumeces taeniolatus* (Blyth).

### Genus *Scincus* Gronovius

*Scincus gasperettii* Haas, new species.

(Figure 10.)

HOLOTYPE: CAS 84519, male, from Dhahran, Saudi Arabia, collected July 27, 1946, by John Gasperetti.

PARATYPE (1): CNHM 73986, male, from Abqaiq, collected in July, 1945, by Gasperetti.

DIAGNOSIS: A species of the *S. meccensis-mitranus* group, with 5 supra-oculars, snout rather short, and ear-opening visible as an oblique slit; dis-

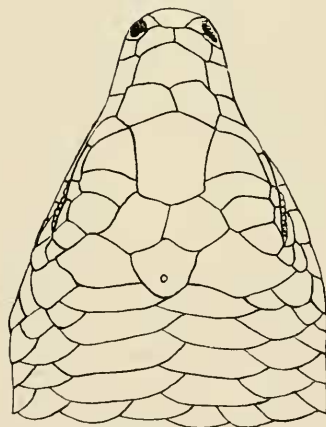


Figure 10. *Scincus gasperettii* Haas, new species. Dorsal view of head of CAS 84519, holotype.

tinguished from both *S. meccensis* and *S. mitranus* by having 26 scale rows around the body.

DESCRIPTION: Upper labials 8; lower labials 7; 3 loreals; 3 supraciliaries; 2 azygous post-mentals. Rostral not in contact with the median internasal; the 2 postnasals meet in a short sagittal suture; prefrontals paired; frontal normal in holotype, transversely divided in paratype, with anterior portion twice as long as posterior part; 4 triangularly pointed scales along the anterior border of the ear opening; nuchals 4/4.

General color light brown, the posterior border of dorsal scales dark brown; patches of dorsal scales unicolor, so that a faint pattern of darker and lighter spotting is produced. No dark brown lateral spots present.

MEASUREMENTS (in mm.):

	Holotype CAS 84519 ♂	CNHM 73986 ♂
Total length .....	114	115
Tail length .....	44	49

***Scincus meccensis* Wiegmann.**

*Scincus meccensis* WIEGMANN, 1837, Arch. Natur., p. 127 (Arabia).

MATERIAL EXAMINED (1): HUI 2673, from Mudawara, central Arabia, collected in 1944, by Waterston.

REMARKS: This specimen, with only 22 scale rows around the body, comes closest to *Scincus meccensis*. It has 6/5 supraoculars; 3 supraciliaries, the first much the longest; rostral with a short suture with the frontonasal; snout elongate; loreal depression slight; 8/7 upper labials; frontal one and two-thirds as long as wide; prefrontals paired; 5/7 nuchals; 4/5 triangular scales in front of the oblique ear opening.

Definitive allocation of this specimen is obviously impossible without additional material from central Arabia.

***Scincus deserti* Haas, new species.**

(Figure 11.)

HOLOTYPE: HUI 2674, from 23 miles north of Hail, Saudi Arabia, collected in 1944, by A. R. Waterston.

PARATYPE (1): HUI 2752, from central Arabia, collected in 1944, by Waterston.

DIAGNOSIS: A *Scincus* with 26 scale rows around the body; ear opening visible, an oblique slit, with 4 triangular and somewhat fringed scales covering it; 6 supraoculars; frontonasal in contact with rostral; 2 pre-

frontals; snout longer and narrower than in *S. gasperettii*; frontal elongate, one and one-half times as long as wide, narrowed posteriorly. Four faint brownish lateral spots present on each side.

REMARKS: In the paratype there are 27 scale rows around the body; also, there is a fifth pair of brown spots in front of the forelimbs, with a brown marking on each knee.

This species differs from *Scincus scincus* in the absence of transverse dorsal bars; in having 4 fringed scales in front of the ear opening instead of 2; and in the presence of the lateral spots. *Scincus deserti* differs from *S. philbyi* in having the ear opening clearly discernible; the supraocular region does not bulge as in *S. philbyi*; the snout tapers gradually and does not have the spatulate form of the latter species; and the canthus rostralis is feebly marked, whereas it is sharply defined in *S. philbyi*.

MEASUREMENTS (in mm.):

	Holotype H U J 2674	H U J 2752
Total length . . . . .	157	165
Tail length . . . . .	70	59
Forelimb . . . . .	28	29
Hindlimb . . . . .	29	37

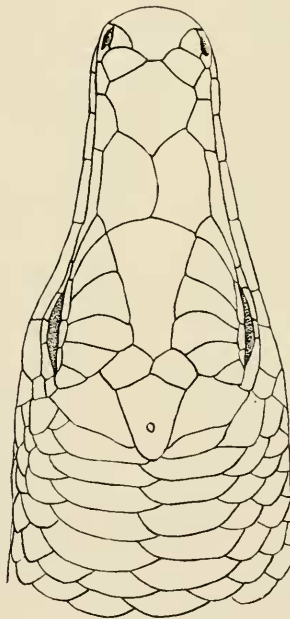


Figure 11. *Scincus deserti* Haas, new species. Dorsal view of head of H U J 2674, holotype.

**Scincus philbyi** Schmidt

*Scincus philbyi* SCHMIDT, 1941, Field Mus. Nat. Hist., Zool. Ser., 24:162: fig. 18 (Anaiza, Saudi Arabia).

MATERIAL EXAMINED (45): CAS 84296, 84303-84306, 84308-84310, 84312-84317, 84319-84320, 84324-84330, 84487-84489, 84494, and CNHM 74004, from Abqaiq, collected in 1945-1946, by Gasperetti; CAS 84535, 84580-84587, and CNHM 74003, from Dhahran, collected in 1945-1946, by Gasperetti; CAS 84414, from Qatif, collected in 1945, by Gasperetti; CAS 84427, 84429, from Shimal, collected in 1946, by Gasperetti; CAS 84435, from El Alat, collected in 1946, by Gasperetti; CAS 84626, from Tomayiah, collected in 1945, by Gasperetti; HUI 2671-2672, from Sharja, collected in 1944, by Vesey-Fitzgerald.

REMARKS: Of the 45 specimens in this series, 14 specimens have 2 prefrontals, which is normal for other species in the genus, and 31 individuals have the prefrontal fused into a single scale, as in the type series of *S. philbyi*. The number of brown lateral spots is variable; in some specimens they were faint or absent. The color of the spots varies from yellow to very dark brown. A small third loreal scale may be present anterior to the 2 normal loreals.

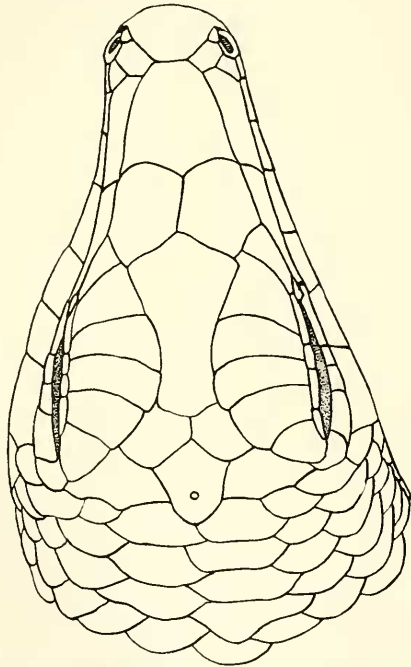


Figure 12. *Scincus philbyi* Schmidt. Dorsal view of head of CAS 84414, to show divided prefrontal.



## Family CHAMAELEONIDAE

Genus **Chamaeleo** Laurenti**Chamaeleo calyptratus** Duméril and Duméril.

*Chamaeleo calyptratus* DUMÉRIL and DUMÉRIL, 1851, Cat. Méthod. Rept., p. 31 (no locality given).—Anderson, 1896, Contri. Herp. Arabia, p. 62 (Yemen).—Schmidt, 1953, Fieldiana: Zoology, 34:259.

MATERIAL EXAMINED (1): HUI 2675, from Jebel Qara, Dhufar, collected in 1943, by Vesey-Fitzgerald.

## Order SERPENTES

## Family BOIDAE

Genus **Eryx** Daudin**Eryx jayakari** Boulenger.

*Eryx jayakari* BOULENGER, 1880, Ann. Mag. Nat. Hist., (6) 2:508 (Muscat, Arabia).

MATERIAL EXAMINED (15): CAS 84357–84358, 84476, 84493, 84499, and CNHM 74023, from Abqaiq, collected in 1945–1946, by Gasperetti; CAS 84553, 84570–84572, 84574, and CNHM 74024, from Dhahran, collected in 1946, by Gasperetti; CAS 84434, 84438, from El Alat, collected in 1946, by Gasperetti; HUI 3868, from Sharja, Trucial Coast, Oman, collected in 1944, by Vesey-Fitzgerald.

REMARKS: Twelve specimens had 5 scales between the eyes; two specimens had 4 scales between the eyes.

Genus **Coluber** Linnaeus**Coluber ventromaculatus** Gray.

*Coluber ventromaculatus* GRAY, 1834, Illus. Indian Zool., 2: pl. 80, fig. 1 (Bengal).

MATERIAL EXAMINED (5): CAS 84544, 84554, 84565, and CNHM 74000, from Dhahran, collected in 1946, by Gasperetti; HUI 3863, from Jebel Qara, collected in 1943, by Vesey-Fitzgerald.

REMARKS: In the single juvenile specimen, CAS 84565 (much damaged), the anterior dorsal spots are longitudinally elliptic, changing to circular at mid-body, and to transverse saddle-shaped markings posteriorly; toward the vent the markings disappear; they are absent on the tail.

In 3 adult males, the ventrals vary from 203 to 206, the caudals from 95 to 100. There are 214 ventrals and 119 caudals in the single female (HUI 3863).

### Genus *Lytorhynchus* Peters

#### *Lytorhynchus diadema arabicus* Haas, new subspecies.

HOLOTYPE: CAS 84478, male, from Abqaiq, Saudi Arabia, collected May 17, 1946, by John Gasperetti.

PARATYPES (8): CAS 84504, 84526, 84557, 84579, and CNHM 73955, from Dhahran, collected in 1946, by Gasperetti; HUI 3859, from Saudi Arabia, collected in 1944, by Waterston; HUI 3860, from Dhahran, collected in 1943, by Vesey-Fitzgerald; HUI 3867, from Moreiwa Post (not located on map), collected in 1942, by Hardy.

DIAGNOSIS: Habitus more slender than the typical subspecies, with wider intervals between the dorsal spots, and a higher number of ventrals (177-193 in *L. d. arabicus* as compared with 161-172 in *L. d. diadema*).

DESCRIPTION: Loreal single; 1 to 3 preoculars; 2 postoculars; 2 temporals in the first row, 2 or 3 temporals in the second row. Rostral strongly projecting; deeply excavated beneath. Upper labials 8, the fifth or fourth and fifth enter the orbit; lower labials 7 to 11, usually 9 or 10. Scale rows at mid-body 19; ventrals 177-193; caudals with maximum of 47. Thirty-five to 50 dark blotches present on the body, 9 to 16 blotches on the tail.

### Genus *Malpolon* Fitzinger

#### *Malpolon moilensis* (Reuss).

*Coluber moilensis* REUSS, 1834, Mus. Senck., 1:142; pl. 7, fig. 1 (Moilah, Arabia).

*Malpolon moilensis* Parker, 1931, Ann. Mag. Nat. Hist., (10) 8:522.

MATERIAL EXAMINED (9): CAS 84474, 84500, 84625, from Abqaiq, collected in 1946, by Gasperetti; CAS 84515, 84551, 84567-84568, and CNHM 74002, from Dhahran, collected in 1946, by Gasperetti; HUI 3861, from Dhahran, collected in 1943, by Vesey-Fitzgerald.

REMARKS: This species has a wide, but discontinuous distribution, confined to widely scattered localities from Palmyra to the middle of the Arabian Peninsula.

Genus **Psammophis** Boie**Psammophis schokari** (Forskål).

*Coluber schokari* FORSKÅL, 1775, Descr. Anim., p. 14 (Yemen).

*Psammophis schokari* BOULENGER, 1896, Cat. Snakes Brit. Mus., 3:157.

MATERIAL EXAMINED (4): CAS 84418, from Qatif, collected in 1945, by Gasperetti; CNHM 74001, from Dhahran, collected in 1946, by Gasperetti; HUI 3866, from 23 miles north of Hail, collected in 1944, by Waterston; HUI 3865, from Jebel Qara, collected in 1943, by Waterston.

Genus **Naja** Laurenti**Naja haje arabica** Scortecchi.

*Naja haje arabica* SCORTECCI, 1932, Atti Soc. Ital. Sci. Nat., 71:47 (San 'a Yemen).

*Naja haje arabica* PARKER, 1941, Brit. Mus. (Nat. Hist.), 1:5.

MATERIAL EXAMINED (1): HUI 3864, from Jebel Qara, collected in 1943, by Vesey-Fitzgerald.

REMARKS: This specimen is a juvenile, 535 mm. in total length and 106 mm. in tail length. There are 214 ventrals and 77 caudals. The scales are in 19 rows; they do not increase on the neck.

General color yellowish brown, darker on top of the head; the dorsal scales have narrow dark margins; white below, with a median interrupted dark brown band; each ventral with a dark posterior border.

Genus **Walterinnesia** Lataste**Walterinnesia aegypti** Lataste.

*Walterinnesia aegyptia* LATASTE, 1887, Le Naturaliste, 1887:411 (Egypt).

MATERIAL EXAMINED (3): CAS 84498, and CNHM 74025, from Abqaiq, collected in 1946, by Gasperetti; CAS 84578, from Dhahran, collected in 1946, by Gasperetti.

REMARKS: MAX (1953) has shown that *Naja morgani* Mocquard is clearly a synonym of *Walterinnesia aegyptia*.

## Family HYDROPHIIDAE

Genus **Hydrophis** Latreille**Hydrophis cyanocinctus** Daudin.

*Hydrophis cyanocinctus* DAUDIN, 1803, Hist. Nat. Rept., 7:383 (Coromandel).

MATERIAL EXAMINED (10): CAS 84463-84464, 84466-84468, 84470-84472, and CNHM 73996-73997, from Al Khobar, collected in 1946, by Gasperetti.

REMARKS: The longest specimen measures 673 mm. in total length, and 73 mm. in tail length.

## Family VIPERIDAE

Genus **Pseudocerastes** Boulenger**Pseudocerastes fieldi** Schmidt.

*Pseudocerastes fieldi* SCHMIDT, 1930, Field Mus. Nat. Hist., Zool. Ser., 17:227: pl. 2, text fig. 2 (Bair Wells, Trans-Jordan).

MATERIAL EXAMINED (1): HUU 3883, from Sakaka, near Jauf, collected in 1942, by Hardy.

REMARKS: This specimen extends the known range of this species, which includes Sinai, southern Israel, and southern Jordan, into northern Arabia.

Genus **Cerastes** Wagler**Cerastes cerastes** (Linnaeus).

*Coluber cerastes* LINNAEUS, 1758, Syst. Nat., 10th Ed., 1:217 ("Habitat in Oriente").  
*Cerastes cerastes* ANDERSON, 1899, Bih. Svenska Vet. Akad. Handl., 24:29.

MATERIAL EXAMINED (23): CAS 84503, 84505-84506, 84520-84521, 84527, 84531, 84555, 84560-84564, 84566, and CNHM 74005, from Dhahran, collected in 1946, by Gasperetti; CAS 84481, 84490, 84495-84496, from Abqaiq, collected in 1946, by Gasperetti; CAS 84424-84425, and CNHM 74006, from Shimal, collected in 1946, by Gasperetti; CAS 84440, from Abu Shaiba, collected in 1946, by Gasperetti.

REMARKS: Five specimens in this series of 23 are horned. I find no relation between the development of horns and body size. None of the specimens have dark tails.

### Genus **Echis** Merrem

#### **Echis coloratus** Günther.

*Echis colorata* GÜNTHER, 1878, Proc. Zool. Soc. London, 1878:978 (Jebel Sharr, Midian).

MATERIAL EXAMINED (1): HUI 3862, from Saūdi Arabia (exact locality unknown), collected in 1944, by Waterston.

### CONCLUSION

In this paper 48 species of reptiles and 3 species of amphibians are enumerated. With the exclusion of Jordan and the Sinai Peninsula, about 115 species and subspecies of reptiles and 8 species and subspecies of amphibians are presently known from Arabia. The number of endemic forms in this region is considerable; the genera *Stenodactylus*, *Phrynocephalus*, *Agama*, *Uromastyx*, and *Scincus* include a great number of species and subspecies known only from Arabia. In the wider relations of the herpetological fauna, the affinities of the elements in western and southwestern Arabia with the fauna of northeastern Africa are striking. These affinities are exemplified, at the generic level, by *Tropicolotes*, *Pristurus*, *Philochortus*, *Latastia*, and *Rhynchocalamus*; at the species level, these affinities are exemplified by *Agama sinaita*, *Agama cyanogaster*, *Uromastyx aegyptius*, *Acanthodactylus boskianus*, *Eremias guttulata*, *Scincus hemprichi*, *Boaedon lineatus*, *Coluber rhodorhachis*, *Dasypeltis scabra*, *Telescopus dhara*, *Naja haje*, and *Bitis arietans*. Many species range over the whole peninsula, but those mentioned above are restricted to the west and south coasts and their hinterlands, and are found in northeastern Africa as well. A similar correspondence exists between the south Iranian and Iraqi herpetofauna and that of eastern and southeastern Arabia. In this southeastern part of the peninsula there are many forms that do not reach western Arabia. To this group belong *Aslsophylax tuberculatus*, *Hemidactylus persicus*, *Agama persica*, all of the Arabian species of the genera *Phrynocephalus* and *Diplometopon*, and the species *Acanthodactylus fraseri* and *Eumeces taeniolatus*. The number of species with these eastern affinities is smaller than that of the western list. Many species, however, range from Sind, in northwestern India, across southern

Iran and Arabia, into Syria and Egypt. Examples are afforded by *Eremias guttulata* and *Eremias brevirostris*, *Echis carinatus*, and *Varanus griseus*. Human agency can have played no more than a minor role in such dispersals.

The last comprehensive work on the amphibians and reptiles of Arabia was *A Contribution to the Herpetology of Arabia*, by John Anderson, published in 1896. Every subsequent collection from this area has yielded a harvest of species previously unknown. The time seems ripe for a renewed comprehensive work on the rich Arabian herpetofauna, the example for which has been set by Colonel Richard Meinertzhagen's recent account of the birds.

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